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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/768,964	01/29/2004	Tomislav F. Milinusic	LAMA122341	4554
26389	7590	10/25/2006	EXAMINER	
CHRISTENSEN, O'CONNOR, JOHNSON, KINDNESS, PLLC 1420 FIFTH AVENUE SUITE 2800 SEATTLE, WA 98101-2347			RATCLIFFE, LUKE D	
			ART UNIT	PAPER NUMBER
			3662	

DATE MAILED: 10/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/768,964	Applicant(s) MILINUSIC, TOMISLAV F.	
	Examiner Luke D. Ratcliffe	Art Unit 3662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-7, and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirzel (4671650) in view of Hardin (5586063).

Referring to **claim 1**, Hirzel shows an apparatus for optical inertial measurement with a body (figure 2), an optical head (figure 2), a sensor (column 2 line 55-65), and a processor (column 3 line 9-26). However Hirzel does not show the two sensors mounted at known angles relative to the body.

Hardin shows a similar optical inertial measurement system that has the sensors mounted at known angles (figure 1). With the sensors mounted at known angles the optical inertial measurement system of Hardin can also give range, or in the case of Hirzel altitude, as well as speed. Hirzel teaches that he needs to obtain altitude from an outside source in order to make his speed determination and teaches that it would be advantageous to be able to have the device determine altitude as well. It would have been obvious to modify Hirzel to include the sensors mounted at fixed positions as

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taught by Hardin because this allows the optical inertial measurement system to directly measure altitude and not have to get the altitude from an outside source.

Referring to **claim 2**, Hirzel shows the apparatus wherein there is more than one optical element (figure 1).

Referring to **claim 3**, Hirzel shows an apparatus wherein the more than one optical elements are spatially arranged around the body to create a symmetric layout of optical paths (figure 1).

Referring to **claim 5**, Hirzel shows an apparatus wherein one of the more than one optical elements is a nadir optical element focused to create an optical path to a nadir viewing region (column 2 line 50 – column 4 line 20).

Referring to **claim 6**, Hirzel shows an apparatus wherein a secondary optical element is provided to create a secondary path (figure 1).

Referring to **claim 7**, Hirzel shows an apparatus wherein the at least one viewing region is an earth reference viewing region (figure 1).

Referring to **claim 12**, Hirzel shows a method for optical inertial measurement comprising receiving images (column 2 line 55-65), and performing optical flow motion extraction (column 3 line 9-26).

Referring to **claim 13**, Hirzel shows more than one viewing region (figure 1).

Referring to **claim 14**, Hirzel shows the viewing regions being an earth reference (figure 1).

Claims 4, 9, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirzel (4671650) in view of Hardin (5586063) and Hoschette (4965453).

Referring to **claims 4 and 9**, Referring to **claim 1**, Hirzel shows an apparatus for optical inertial measurement with a body (figure 2), an optical head (figure 2), a sensor (column 2 line 55-65), and a processor (column 3 line 9-26). However Hirzel does not show the two sensors mounted at known angles relative to the body.

Hardin shows a similar optical inertial measurement system that has the sensors mounted at known angles (figure 1). With the sensors mounted at known angles this sensor can also give range as well as speed, and Hirzel teaches that he needs to obtain range from an outside source in order to make his speed determination and teaches that it would be advantageous to be able to have the device determine altitude as well. However Hirzel does not show five or more optical elements focused in a different direction and angled at a known angle.

Hoschette shows at least five optical elements focused in different directions and angled at a known angle relative to the body to create an optical view path to at least five viewing regions (figure 2 and corresponding specification). It would have been obvious to modify Hirzel to include the at least five optical elements disclosed in Hoschette because this allows for a larger viewing area without an extremely large optical element.

Referring to **claim 10**, Hirzel shows an apparatus wherein a secondary optical element is provided to create a secondary path (figure 1).

Claims 8, 11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirzel (4671650) in view of Hardin (5586063) and Falbel (5189295).

Referring to claims 8 and 15, Referring to claim 1, Hirzel shows an apparatus for optical inertial measurement with a body (figure 2), an optical head (figure 2), a sensor (column 2 line 55-65), and a processor (column 3 line 9-26). However Hirzel does not show the two sensors mounted at known angles relative to the body.

Hardin shows a similar optical inertial measurement system that has the sensors mounted at known angles (figure 1). With the sensors mounted at known angles this sensor can also give range as well as speed, and Hirzel teaches that he needs to obtain range from an outside source in order to make his speed determination and teaches that it would be advantageous to be able to have the device determine altitude as well. However Hirzel does not show an apparatus for optical inertial measurement wherein at least one viewing region is a celestial reference-viewing region.

Falbel shows a viewing region that is a celestial reference viewing region and processor that determines position based on pixel shift (figure 4). It would have been obvious to modify Hirzel to include the celestial reference position determination because if there was no ground based references for the sensors to receive the system could still work using the celestial references.

Claim 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Hirzel (4671650) in view of Hardin (5586063) and Hoschette as applied to claim 9 above, and further in view of Falbel (5189295).

Hirzel shows an apparatus for optical inertial measurement with a body (figure 2), an optical head (figure 2), a sensor (column 2 line 55-65), and a processor (column 3 line 9-26). However Hirzel does not show the two sensors mounted at known angles relative to the body.

Hardin shows a similar optical inertial measurement system that has the sensors mounted at known angles (figure 1). With the sensors mounted at known angles this sensor can also give range as well as speed, and Hirzel teaches that he needs to obtain range from an outside source in order to make his speed determination and teaches that it would be advantageous to be able to have the device determine altitude as well. However Hirzel does not show five or more optical elements focused in a different direction and angled at a known angle.

Hoschette shows at least five optical elements focused in different directions and angled at a known angle relative to the body to create an optical view path to at least five viewing regions (figure 2 and corresponding specification). It would have been obvious to modify Hirzel to include the at least five optical elements disclosed in Hoschette because this allows for a larger viewing area without an extremely large optical element. However neither Hirzel nor Hoschette show an apparatus for optical inertial measurement wherein at least one viewing region is a celestial reference-viewing region.

Falbel shows a viewing region that is a celestial reference viewing region and processor that determines position based on pixel shift (figure 4). It would have been obvious to modify Hirzel to include the celestial reference position determination

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because if there was no ground based references for the sensors to receive the system could still work using the celestial references.

Response to Arguments

Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

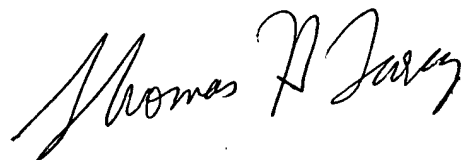
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luke D. Ratcliffe whose telephone number is 571-272-3110. The examiner can normally be reached on 8:00-4:30 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Tarcza can be reached on 571-272-6979. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LDR

A handwritten signature in black ink, appearing to read "Thomas H. Tarcza". The signature is fluid and cursive, with the first name "Thomas" being the most prominent part.

THOMAS H. TARCZA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600